



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Patent Application of:

KYLE R. JENSEN

Examiner: **Fred Prince**

Serial No. **09/940,977**

Art Unit: **1724**

Filing Date: **8/28/2001**

For: **PERIPHYTON FILTRATION PRE-
AND POST-TREATMENT SYSTEM
AND METHOD**

Mail Stop Art Unit 1724
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF G. THOMAS BLAND, JR.,
UNDER 37 CFR § 1.132

I, G. Thomas Bland, Jr., do hereby declare and say as follows:

1. I am the President of AquaFiber Packaging Corporation, a Florida corporation. I am a citizen of the United States of America and a resident of the State of Florida residing at 2940 DeBrog Way, Winter Park, Florida, 32792.

2. The Assignee of the present application, AquaFiber Packaging Corporation, was incorporated for the express purpose of restoring surface waters through the use of periphyton filtration flowways, owing in large part to the continuing deterioration of Florida's surface waters.

3. One of the technical problems that had to be solved was that most surface waters to be remediated contained phosphorus, from agricultural, urban, and industrial sources, which is not readily absorbed by periphyton algae in known floway designs. Our belief of a reason for this lack of absorption is that phosphorus in surface waters is combined with and/or absorbed by organic entities and/or compounds, such as

phytoplankton and tannins. As surface waters, laden with these phosphorus-rich organic compounds, passed over the flowways, the "loose," or unbound, phosphorus (referred to as ortho phosphorus or soluble reactive phosphorus) is absorbed by the periphyton, but the majority of the phosphorus was not absorbed because the periphyton is not able to liberate the phosphorus from a "bound" state. As an example of a known ratio, in Lake Apopka, Florida, the ortho phosphorus has been measured at 2 ppb ortho- and 342 ppb total phosphorus. Therefore, the amount of phosphorus available for periphyton uptake is less than 1% of the total phosphorus present in the water to be remediated.

4. In 2001, the present inventor, a co-founder of the Assignee, discovered that by dosing surface water with an ozone contact regime, ortho-phosphorus was released from the organic compounds/entities. As an example, in the above-referenced Lake Apopka, 147 ppb of ortho-phosphorus was released from the 342 ppb total phosphorus.

5. The undersigned and the Inventor met with the Director of the South Florida Water Management District's nutrient removal program, Jennifer Jorge, PhD, and her staff, in February 2002, to discuss the application of our technology to remediation of the Florida Everglades. Initially, Dr. Jorge indicated that her department had already reviewed the available technologies for phosphorus removal with "all of the world's experts" and believed that there was nothing new that we could impart to them, that there was no money available in their budget, and that their search for advanced treatment techniques for phosphorus removal had ended in September 2001. After agreeing to spend a brief time with us, we presented initial data from another lake in Florida, Lake Griffin, showing additional release of ortho-phosphorus from several samples. Impressed by our data, Dr. Jorge and her staff spent a considerable amount of time with us learning more about our technology as claimed in the present patent application.

6. Dr. Jorge and her staff subsequently requested and received permission from the Governing Board to issue a final Request for Proposal (RFP) for Advanced Treatment Technologies for phosphorus removal from Everglades surface water. The RFP was to be limited to strictly *new* technologies.

7. The RFP stated that ozone usage had already been investigated and was not to be the subject of a bid. When we queried this restriction, pointing out that the *combination* of ozone technology, to release ortho-phosphorus, with aquatic vegetative uptake of the released ortho-phosphorus, was believed new, we were told to proceed with our bid.

8. Following the awarding of a contract to the Assignee, winning over three other competing bids, we began evaluation operations in February 2003, demonstrating that the claimed technology is efficacious.

9. I have been provided with copies of prior art references cited in the above application, and in particular have read and understand the disclosure presented in United States Patent Nos. 5,037,550 to Montagnon et al.; and 5,851,398 to Adey. I have also read the Examiner's remarks in the January 23, 2003, Office Action for the above-referenced application.

10. I have carefully studied these referenced patents with respect to the subject matter of the claims in the case and believe the above information on the believed novelty and nonobviousness of the present invention support the patentability of the claims in the case.

11. The Examiner rejects independent Claims 1 and 20 as being unpatentable over Montagnon et al. in view of Adey. Montagnon teaches the use of ozone for "eliminat[ing] viruses" [col. 5, line 61]. Montagnon does not teach the step of "flowing the water over a colony of attached algae to remove undesired matter" from the water to be

treated (Claim 1), or as in the case of system Claim 20, the element of "means for directing the ozone-exposed water from the water-exposing means to the algal colony." Rather, in Montagnon the algae are considered a detriment to the system, as they clog the biological bed, and are used as a monitor for determining when a washing cycle should be initiated. The algae are not taught to provide any cleansing benefit. Adey teaches the use of attached algal colonies for cleansing water. However, as indicated above, it has been shown that the use of algae alone does not remediate the water from certain nutrients to a desired level.

12. I hereby declare that all statements made herein of my own accord are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated this 21st day of May, 2003.



G. Thomas Bland, Jr.